

School Leadership and Student Outcomes: Identifying What Works and Why

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Foreword

This Monograph is the ACEL William Walker Oration for 2007, delivered on October 11, 2007 at the national conference of the ACEL, by Professor Viviane Robinson, University of Auckland. Professor Robinson acknowledges the financial support of the Iterative Best Evidence Synthesis programme of the New Zealand Ministry of Education - <http://educationcounts.edcentre.govt.nz/goto/BES?> Research assistance was provided by Claire Lloyd and statistical advice by Ken Rowe and John Hattie.

In this Monograph, Professor Robinson, seeks to both identify and explain the types of school leadership that make an impact on a range of valued student outcomes. A systematic search produced 26 published studies that quantified the relationship between types of school leadership and a range of social and academic student outcomes. Eleven of the studies included sufficient data from which the effects of particular types of leadership could be calculated. Five dimensions of leadership were identified, with the mean effect size estimates ranging from small (goal setting; strategic resourcing; and, ensuring an orderly and supportive environment), to moderate (planning, coordinating and evaluating teaching and the curriculum), to large (promoting and participating in teacher learning and development). While these findings move beyond the analysis of leadership overall to consider the relative magnitude of impact of different types of leadership, these findings are still very abstract and school leaders could still perform any one of them in ways that did or did not capture the qualities that really make a difference to student outcomes. Recent research on teaching and learning, and on teacher learning, tells us a great deal about these qualities. If leadership research was more strongly connected with this evidence, and could discriminate between leadership practices that did and did not foster these qualities, it is likely that it would show leadership influences on student outcomes to be even stronger than those revealed here.

The William Walker Oration

The William Walker Oration is one of the most important annual events for the Australian Council for Educational Leaders. It is an invited address dedicated to the memory of W.G. (Bill) Walker, who died suddenly on 25 July 1991 at the age of 62. As Emeritus Professor Hedley Beare stated in the 1998 oration, 'Bill was one of Australia's truly international, truly pioneering scholars, and a leading Australian educator'. The oration is delivered at the ACEL national conference as part of the ACEL annual awards ceremony, or as a key-note address. The inaugural William Walker Oration was delivered in 1991 by Rt. Hon. Sir Zelman Cowen, eight weeks after Bill's untimely death.

The William Walker Orators 1991-2007

- 1991 Right Honourable Sir Zelman Cowen
- 1992 Professor Fenton Sharpe
- 1993 Professor Brian Caldwell
- 1994 Professor Judith Chapman
- 1995 Emeritus Professor Peter Karmel
- 1996 Associate Professor Frank Crowther
- 1997 Dr Allan Walker and Mr John Walker
- 1998 Emeritus Professor Hedley Beare
- 1999 Oration not delivered
- 2000 Professor William Mulford
- 2001 Ms Margaret Jackson
- 2002 Hon John Dawkins
- 2003 Hon Clare Martin
- 2004 Professor Patrick Duignan
- 2005 Professor Keith Walker
- 2006 Professor John MacBeath
- 2007 Professor Viviane Robinson

Politicians, policy makers and the public at large are convinced that the quality of school leaders, and of principals in particular, makes a substantial difference to the progress students make at school. In some jurisdictions, such beliefs are used to justify high stakes consequences for those principals whose schools do or do not meet student achievement targets. Are these convictions supported by the research evidence or do they reflect a romanticised view of leadership in which the success of an organisation is attributed to the capacity of a single heroic leader (Meindl, 1998)?

The answer is both yes and no. The public's view of the importance of school leadership is supported by case studies of schools which describe how newly appointed principals take dysfunctional schools (where staff and student absence is high, where the environment is unsafe and where little of value is being learned), and transform them into schools which attract both students and staff, where there is a love of learning and student achievement meets or exceeds relevant benchmarks (Edmonds, 1979; Maden, 2001; Scheurich, 1998).

In contrast to this qualitative case study research, the quantitative research tells a quite different story. The typical conclusion drawn by quantitative leadership researchers is that school leaders have small and indirect effects on student outcomes that are essentially mediated by teachers (Hallinger & Heck, 1998). There are some exceptions however, notably the metanalysis of United States evidence completed by Marzano, Waters and McNulty (2005) which found a moderately strong effect of school leadership on student outcomes.

What accounts for the difference in the findings of the two types of research? One obvious explanation is the sampling strategy employed. The case studies are selected because they are believed to be exceptional. The quantitative studies usually involve much larger random or representative samples of schools. Perhaps failing schools provide far greater opportunities to make a difference to student outcomes. Perhaps the leadership qualities required to turn around schools are rare, and so we should accept the high impact of the few and the low, to moderate impact of the many.

The purpose of this paper is to explore a different possibility altogether. Perhaps the public and politicians are right and school leaders as a whole make a much bigger negative or positive difference to students than researchers have captured so far. In many ways, however, the question of how much impact school leaders have on student outcomes is a flawed one, because the answer surely depends on what it is that leaders do. The contribution of leadership research should be to identify the types of leadership that have relatively more or less impact on students, so that they can be emphasised in leadership preparation and development programmes and be better supported by education policies and infrastructure.

What counts as a leadership type? In this paper I use the word to mean a leadership dimension or set of related practices. The purpose of this paper is to identify those dimensions of leadership which make the biggest difference to students and to explain why they work. The explanations are important because recent research on teacher and professional learning has shown that people can not adapt descriptions of effective practice to their own contexts unless they understand the theoretical principles that explain why they work and under what conditions (Timperley, Wilson, Barrar & Fung, 2007). It is the combination of description, practical example and theoretical explanation that makes for powerful professional learning.

Research Approach

The leadership dimensions and their relative impacts on student outcomes were identified through a metanalysis of published research which examined the direct or indirect links between leadership and student outcomes. Since the purpose of this paper included the explanation of the dimensions, the multivariate quantitative research from which the dimensions were derived was supplemented with additional studies which provided theoretical insight into the operation of each dimension.

Search Strategies

The metanalysis began with a search of the international literature for publications in English that empirically examined the links between school leadership and academic or non-academic student outcomes. Thus, any study which included empirical measures of leadership (however theorised) and measures of student outcomes was reviewed. An inclusive approach was taken to leadership, with superintendent, principal, teacher, parent and total school-based leadership admissible. The first search strategy involved examining electronic data-bases using a combination of keywords around leadership (leaders, principal, teacher leadership) and student outcomes (achievement, achievement gains, social outcomes). The second strategy involved hand or electronic searches of the table of contents and abstracts of specific leadership journals. The third involved careful screening of the reference lists of relevant articles, technical reports and chapters in international journals and handbooks to identify any further relevant studies.

Two types of potentially relevant studies were excluded. Unpublished theses and conference papers were omitted because they had not been subject to peer review processes. Further, some apparently relevant studies were excluded because the same data sets had been used in previously published work.

The search yielded 26 studies, published between 1978 and 2006, that provided evidence about the links between leadership and student outcomes. The majority of these studies (18 of 26) were conducted in United States schools. Two studies were conducted in Canada and one only in each of Australia, England, Hong Kong, Israel, Netherlands, New Zealand and Singapore.

Sixteen studies examined leadership in elementary school contexts, four in high schools, and seven studies included a mix of elementary, middle and high schools. Eighteen of the 26 studies confined their analysis of school leadership to the principal or designee only, while nine took a broader, more distributed view of leadership.

While these studies have examined the impact of leadership on a wide range of student outcomes, academic outcomes (mathematics, reading and language) predominated. Twenty-two studies examined academic outcomes, four examined non-academic outcomes, and one included both. Without close inspection of assessment items in the various standardised tests used, it is difficult to evaluate the intellectual depth of the skills and knowledge being assessed. Critical thinking, intellectual challenge and problem-solving were features of at least some of the assessments. The four studies examining leadership impact on students' social and personal well-being included measures of attitudes to school, teachers and learning, and students' academic self concept, engagement with their schooling, and retention rates.

The thoroughness of this search can be assessed by comparing it with the number of studies included in two recent literature reviews of the impact of leadership on student outcomes. A synthesis by the London Institute of Education found only eight studies (Bell, Bolam & Cubillo, 2003), while the metaanalysis of Marzano et al. (2005) located 70 studies, 60 of which were unpublished theses or conference papers. In short, both these efforts yielded fewer than a dozen publications. A metaanalysis reported in 2003 on the direct effects of leadership on students, included 15 published studies (Witziers, Bosker & Krüger, 2003).

Analytic Strategies

Relevant information from the 26 studies identified was entered into a spreadsheet under the following headings: sample characteristics (jurisdiction, type and number of schools, inclusion/exclusion criteria, sampling of persons within schools, and sample attrition); leadership theory and instrumentation, including whose leadership was assessed; student outcomes and assessment tools; contextual variables (student background, school community context), indirect leadership effects (e.g., school climate; teachers’ work); study design and analysis techniques (e.g., path analysis, multi-level modelling, discriminant analysis, regression techniques); and main findings including the magnitude of direct and indirect effects of leadership on student outcomes. This spreadsheet was used to describe the study characteristics and to provide a context for the interpretation of the findings.

A second spreadsheet was constructed for the identification of leadership dimensions and their impact. Two of the 26 studies did not contribute to this dimensional analysis as they employed unitary concepts of leadership from which constituent dimensions could not be derived (Ogawa & Hart, 1985; Pounder, Ogawa, & Adams, 1995). A further 14 studies included composite leadership variables or constructs but did not report the data from which the magnitude of the constituent dimensions could be derived.

For each of the remaining 11 studies, all the components of the composite leadership variable were listed and, where possible, an effect size was calculated for the impact of each component on the measure of student outcomes. In some studies, this involved listing every item in the leadership survey used in the study and recording or calculating an effect size measure for each item. In other studies, where data were not presented at the level of survey items, the impacts of the relevant leadership constructs were calculated and recorded along with the author’s description of each construct.

The leadership dimensions were inductively derived from the 198 entries in the spreadsheet, comprising both the exact wording of survey items and descriptions of leadership constructs. After multiple readings and sorting of the entries, they were finally grouped into five main categories and a definition of each category was written. Each entry was then allocated to one of the five categories and an average effect size and standard error was calculated for each of the five leadership dimensions.

Findings

Table 1 presents the five inductively derived leadership dimensions, their definitions and the average effect size and standard errors associated with each. It is important to stress

Table 1: Leadership Dimensions Derived from 11 Studies of Effects of Leadership on Student Outcomes

Leadership Dimension	Meaning of Dimension	Effect Size Estimate
1. Establishing Goals and Expectations	Includes the setting, communicating and monitoring of learning goals, standards and expectations, and the involvement of staff and others in the process so that there is clarity and consensus about goals.	Average ES = 0.35 (SE=.08) <i>49 effect sizes from 7 studies</i>
2. Strategic Resourcing	Involves aligning resource selection and allocation to priority teaching goals. Includes provision of appropriate expertise through staff recruitment.	Average ES = 0.34 (SE=.09) <i>11 effect sizes from 7 studies</i>
3. Planning, Coordinating and Evaluating Teaching and the Curriculum	Direct involvement in the support and evaluation of teaching through regular classroom visits and the provision of formative and summative feedback to teachers. Direct oversight of curriculum through school-wide coordination across classes and year levels and alignment to school goals.	Average ES = 0.42 (SE=.07) <i>79 effect sizes from 7 studies</i>
4. Promoting and Participating in Teacher Learning and Development	Leadership that not only promotes, but directly participates with teachers in, formal or informal professional learning.	Average ES = 0.84 (SE=.14) <i>17 effect sizes from 6 studies</i>
5. Ensuring an Orderly and Supportive Environment	Protecting time for teaching and learning by reducing external pressures and interruptions and establishing an orderly and supportive environment both inside and outside classrooms.	Average ES = 0.27 (SE=.09) <i>42 effect sizes from 8 studies</i>

that these five dimensions reflect the conceptual and measurement frameworks employed in the 11 studies that contributed to the dimensional analysis and that different dimensions could emerge from future research.

The list of dimensions is unusual in that it does not include the typical distinction between leading through progressing tasks and leading through relationships and people.

Leithwood, Louis, Anderson and Wahlstrom (2004) for example, organise their literature review on 'How Leadership Influences Student Learning' under three headings: setting direction, developing people and redesigning the organisation. The task-relationship distinction has been eschewed here because relationship skills are embedded in every dimension. In goal-setting, for example, effective leadership involves not only determining the goal content (task focus) but doing so in a manner that enables staff to understand and become committed to the goal (relationships). What works, it seems, is careful integration of staff considerations with task requirements. Effective leaders do not get the relationships right and then tackle the educational challenges – they incorporate both sets of constraints into their problem-solving.

There is no rule of thumb for interpreting effect sizes, as the type of sample, study design and statistical analyses all affect the estimate of effect size (Cohen, 1988; Lipsey & Wilson, 1993). As a general guide, an effect size of between 0 and 0.2 was interpreted as showing no or a weak effect; between 0.2 and 0.4 as a small but possibly educationally significant effect; between 0.4 and 0.6 as having a moderate educationally significant impact, and greater than 0.6 as having a large and educationally significant impact.

The effect sizes for the five leadership dimensions in Table 1 range from small (Ensuring an Orderly and Supportive Environment; Establishing Goals and Expectations and Strategic Resourcing) to moderately large (Planning, Coordinating and Evaluating Teaching and the Curriculum) and large effects (Promoting and Participating in Teacher Learning and Development). The pattern of relative impacts suggests that the more leadership is focused on the core business of teaching and learning the greater its impact.

The five leadership dimensions are broad and abstract. We can learn more about the types of leadership involved by examining the particular survey items that contributed to each dimension and by identifying their theoretical underpinnings.

Dimension One: Establishing Goals and Expectations

Seven of the 11 studies used in the dimensional analysis provided evidence of the importance of goals and expectations. The 49 indicators yielded an average effect size of 0.35, which can be interpreted as a small but educationally significant effect.

Goal setting, like all the leadership dimensions discussed here, has indirect effects on students by focusing and coordinating the work of the school community. With student background factors controlled, leadership made a difference to students through the degree of emphasis placed on clear academic and learning goals (Bamburg & Andrews, 1991; Brewer, 1993; Heck, Marcoulides & Lang, 1991). This effect was found even in schools where leaders did not make academic goals the top priority. For example, in their study of Israeli community schools, Goldring and Pasternak (1994) found that academic excellence was not one of the top five goals in either low or high performing schools, but the latter still gave it significantly more importance than the former.

In schools with higher achievement or higher achievement gains, academic goal focus is both a property of leadership (e.g., 'the principal makes student achievement the school's top goal') and a quality of school organisation (e.g., 'school-wide objectives are the focal point of reading instruction in this school'). If goals are to function as influential coordinating mechanisms, they need to be embedded in school and classroom routines

and procedures (Robinson, 2001). Successful leadership influences teaching and learning through both face-to-face relationships and by structuring the way that teachers do their work (Ogawa & Bossert, 1995).

The importance of relationships in this leadership dimension is apparent from the fact that leaders in higher performing schools are reported as giving more emphasis to communicating goals and expectations (Heck, Larsen, & Marcoulides, 1990; Heck et al., 1991), and informing the community of academic accomplishments and recognising academic achievement (Heck et al., 1991). There was also some evidence that the degree of staff consensus about school goals was a significant discriminator between otherwise similar high and low performing schools (Goldring & Pasternak, 1994). One study proved to be an exception, showing little effect for goal setting or any other component of instructional leadership (Leitner, 1994).

The importance of goal-setting is also suggested from findings of a metaanalysis of research on the direct effects of leadership on students' academic achievements reported by Witziers et al. (2003). While the overall impact of leadership on students was negligible, they found that the direction-setting role of the leader had more direct impact on student outcomes than any of the other six dimensions of leadership for which data were available. This aspect of leadership was also included as one of the 21 dimensions of effective school leadership that emerged from the Marzano et al. (2005) metaanalysis of U.S. research on the links between leadership and students.

There is a long history of empirical research on goal-setting which has recently been summarised in an easily accessible form by two of the leading theorists (Latham & Locke, 2006). Figure 1 summarises the conditions under which goal-setting is effective, the processes involved and its consequences.

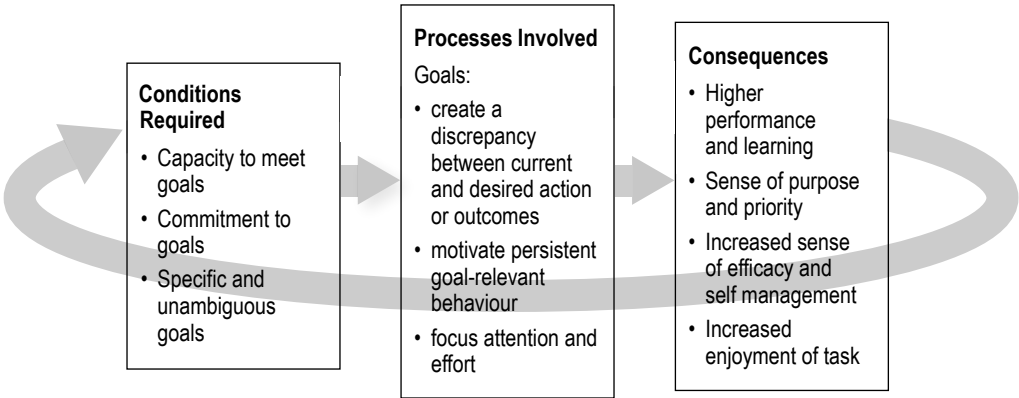


Figure 1: Why Goal-Setting Works

Goal setting works by creating a discrepancy between what is currently happening and some desired future state. When people are committed to a goal, this discrepancy is experienced as constructive discontent that motivates goal-relevant behaviour. Goals focus attention and lead to more persistent effort than would otherwise be the case. The following observation from a teacher of new entrant children vividly portrays how goal-

setting around early literacy levels changed a teacher's priorities (Timperley, Smith, Parr, Portway, Mirams & Clark, 2004, p. 9).

Teacher: Well I keep saying the word focus ... If you don't have that focus, well then another five weeks goes by and things can crop up, like you can do some folk dancing and a marvellous unit on this, and we did this and this. Now we know that every five weeks we are [reviewing students' progress in reading] and you don't let reading go, you let other things go, but you don't let that go.... I would like to think accountability was intrinsic, but it used to be getting through the day, keeping the room tidy, having a quiet class. At the end of the day, we would go out of the classroom not necessarily thinking 'What have I done today that has helped them to learn to read?' You would go home with a warm fuzzy feeling, 'Oh that was a good day. Maybe I will do some more of that tomorrow.' I think the focus has come right back to 'What have I done today and who is moving and who isn't moving and why aren't they moving?' That is what you are taking home in your head.

Goals will only have this motivating effect if the three conditions in the left hand column of Figure 1 are met.

1. Teachers, parents or students need to feel they have the capacity to meet the goal from either their current resources or from the expertise and support they will receive while pursuing the goal.
2. People need to be committed to goals and this requires that they understand and value them. As long as this is the case, it does not matter whether or not they participate in the actual setting of the goals.
3. Specific rather than vague goals are required because specificity makes it possible to judge progress and thus adjust one's performance. Self-regulation is impossible if the goal and therefore, progress towards it, is unclear.

Goal-setting increases performance and learning. It also has positive psychological consequences by providing a sense of priority and purpose and thus solving the problem of everything feeling equally important and overwhelming. This increased focus and sense of purpose increases enjoyment of tasks and willingness to take on challenges.

Of course, there are limits and pitfalls in goal-setting. These are summarised, together with strategies for preventing or overcoming them, in Table 2. If the process of goal-setting is to serve students' education, then attention must be given to goal content as well as the process of goal-setting. While the majority of the indicators in this dimension made reference to academic goals, some indicators did not specify goal content, reporting only that leaders 'develop' or 'communicate' school goals. It is possible that the impact of this leadership dimension on student outcomes would be greater if researchers captured the extent to which goal-setting processes were aligned to students' educational needs.

Dimension Two: Strategic Resourcing

Seven studies provided evidence as to how principals can influence student achievement through their decisions about staffing and teaching resources (Bamburg & Andrews, 1991; Brewer, 1993; Heck, Larsen & Marcoulides, 1990; Heck & Marcoulides, 1996; Heck, Marcoulides & Lang, 1991; Hoy, Tater, & Bliss, 1990; Wellisch, MacQueen, Carriere, & Duck, 1978). Eleven indicators of this dimension yielded an average effect size of 0.34,

Table 2: Goal-Setting: Common Problems and How to Overcome Them

Problem	Strategy
<ul style="list-style-type: none">• People lack the skills and knowledge to achieve the goal	<ul style="list-style-type: none">• Set relevant learning rather than performance goals
<ul style="list-style-type: none">• Individuals’ goals may be in conflict with each other	<ul style="list-style-type: none">• Set team or super-ordinate goals
<ul style="list-style-type: none">• Failure to achieve goals is seen as a risk• Successful goal attainment can reinforce old strategies that are inappropriate in a changing environment	<ul style="list-style-type: none">• Encourage and reward learning from mistakes• Invite robust critique of goals and strategies for reaching them
<ul style="list-style-type: none">• Accountability for goal attainment can produce biased and inaccurate reporting	<ul style="list-style-type: none">• Check validity of a small sample of reports• Leaders model an ethical culture and show no tolerance for deviations
<ul style="list-style-type: none">• Important outcomes that are not set as goals may be ignored	<ul style="list-style-type: none">• Set more inclusive goals• Set goals for all critical outcomes• Inquire into goal interrelationships

This table is a summary and adaptation of ideas in Latham, G. P., & Locke, E. A. (2006) Enhancing the benefits and overcoming the pitfalls of goal setting, *Organizational Dynamics*, 35(4), pp. 332-340.

suggesting that this type of leadership has a small indirect impact on student outcomes.

The word ‘strategic’ in the description of this dimension signals that the leadership activity is about securing resources that are aligned to pedagogical purposes, rather than leadership skill in securing resources per se. Thus, this dimension should not be interpreted as an indicator of skill in fundraising, grant writing or partnering with business, as those skills may or may not be applied in ways that serve key pedagogical purposes.

While this dimension refers to both staffing and teaching resources, the most important resource that leaders manage is teachers, since the quality of teaching explains more of the variance in student achievement than any other system variable (Alton-Lee, 2004; Nye, Konstantopoulos, & Hedges, 2004). In one study conducted in 20 United States elementary schools, there was an interesting interaction between principals’ control of teacher selection and the ambitiousness of their academic goals (Brewer, 1993). Student achievement in schools where principals appointed a higher percentage of their teaching staff was higher than in otherwise similar schools where principals had appointed a smaller percentage of their staff. This was only true, however, for principals who ranked academic goals highly. For principals who ranked them lower, the reverse was apparent.

The importance of being strategic about the procurement and allocation of resources is apparent from studies of the effectiveness and sustainability of school reform initiatives.

Bryk, Sebring, Kerbow, Rollow and Easton (1998) use the metaphor of plucking presents from a Christmas tree to describe leadership that gathers additional resources with little regard for the coherence and strategic alignment of the resulting activities. If those activities overload staff, or detract from their existing improvement efforts, then the extra resources are likely to be negatively rather than positively related to gains in student achievement. The following quotation describes how a well-intentioned but non-strategic search for resources can have negative consequences for both staff and students (Newmann, Smith, Allensworth & Bryk, 2001, p. 298):

These schools are caught in a bind. They want to acquire programs and materials that might help them to teach more effectively, but they soon find themselves in a large and fragmented circuit of school improvement activity. Principals may recognize that faculty members' attention is scattered, but hooking up with multiple initiatives seems to be the only way to gain needed resources and to promote the commitment of staff with different interests and strengths. Moreover, the emotional and social needs of many students require external partnerships. With so many demands, principals feel unable to refuse programs and reason that diverse programs will somehow complement one another. They continue to adopt or pilot programs but do little to establish or strengthen coordination and coherence among them.

One reason why extra resources can have detrimental effects is that multiple simultaneous initiatives can reduce the coherence of a teaching programme. A coherent programme is one that is guided by a common set of principles and key ideas, including specific strategies for teaching and assessment; school organisation that supports the common framework on such issues as staff recruitment, evaluation and professional development; and human and financial resource allocation to support the learning and implementation of the common framework. In their study of Chicago primary schools undergoing reform, Newmann, Smith, Allensworth and Bryk (2001) found that schools with more coherent teaching programs had larger achievement gains than those with less coherent programmes.

These findings are sketchy and more needs to be known about the knowledge and skills needed by school leadership to link resource recruitment and allocation to specific pedagogical goals.

Dimension Three: Planning, Coordinating and Evaluating Teaching and the Curriculum

Seventy-nine indicators of this dimension, drawn from seven studies, showed that this type of leadership has a small to moderate impact on student outcomes ($ES = 0.42$). Leaders in higher performing schools are distinguished from their counterparts in otherwise similar lower performing schools by their personal involvement in planning, coordinating and evaluating teaching and teachers. Three interrelated sub-dimensions are involved in this dimension. First, the leadership of higher performing schools was distinguished by its active oversight and coordination of the instructional program. School leaders and staff work together to review and improve teaching – an idea captured by that of shared instructional leadership (Heck et al., 1990; Heck et al., 1991; Marks & Printy, 2003). In high performing schools, the leadership was more directly involved in coordinating the curriculum across year levels than in lower performing schools. This included such activities as developing

progressions of teaching objectives for reading across year levels (Heck et al., 1991).

Second, the degree of leader involvement in classroom observation and subsequent feedback was also associated with higher performing schools. Teachers in such schools reported that their leaders set and adhered to clear performance standards for teaching (Andrews & Soder, 1987; Bamburg & Andrews, 1991) and made regular classroom observations that helped them improve their teaching (Bamburg & Andrews, 1991; Heck, 1992; Heck et al., 1990). These latter findings about the usefulness of some leaders' feedback after classroom observations stands in stark contrast to teachers' typical reports that their appraisal interviews do not help them improve their teaching (Davis, Ellett & Annunziata, 2002; Ellett, & Teddlie, 2003; Sinnema & Robinson, 2007).

Third, there was greater emphasis in higher performing schools on ensuring that staff systematically monitored student progress (Heck et al., 1990), and that test results were used for the purpose of programme improvement (Heck et al., 1991). For one study in Hawaiian primary schools, use of achievement data involved both principal-led school-wide examination of data, and teacher-led classroom-based monitoring of students (Heck, 2000). Teachers' use of data to evaluate student progress, adjust their teaching, plan their weekly programme and give students feedback, was a strong indicator of school quality, and level of school quality had a significant influence on student achievement in reading and mathematics.

It is important to consider whether these findings are equally applicable to elementary and high schools. The greater size, more differentiated structures and specialist teaching culture of high schools would suggest that the degree of principal influence in particular may be attenuated (Siskin & Little, 1995). The present analysis provides some evidence relevant to this issue. Using a sample of 23 elementary and 17 high schools, Heck (1992) found that the mean frequency of instructional leadership activity in both higher and lower performing schools was lower in the high school group. The mean effect size for the overall influence of the principal or designee was large ($ES = 1.1$) in elementary schools compared to 0.42 in high schools. This suggests that strong oversight of teaching and the curriculum by school leaders has more impact in elementary than in high schools. Clearly, this is an area in which further research, using identical indicators across both higher and lower performing primary and secondary schools, is needed.

There are several theoretical mechanisms at work in this particular leadership dimension. The concepts of coherence and alignment, which were introduced in the prior discussion of strategic resourcing, are also relevant to the explanation of the power of a coordinated curriculum. Students are more likely to learn when their experiences connect with and build on one another (Bransford, Brown & Cocking, 2000). Students need at least three different sets of classroom learning experiences, distributed over a period of days rather than weeks, to learn and remember a complex concept (Nuthall, 2007; Nuthall & Alton-Lee, 1993). The more fragmented and overloaded a curriculum, the less likely students are to have this opportunity. Students learning to read in contexts where there is discontinuity between early childhood and Year 1 literacy activities, or between literacy activities at home and at school, are likely to struggle to connect past and present experience and thus to build rich and flexible representations of their knowledge.

A coherent and coordinated curriculum is also likely to enhance teacher learning

because common objectives and assessment tools make it easier for teachers to focus on teaching problems and make a more sustained effort to develop or acquire the expertise needed to solve them.

The most useful theoretical resource for explaining the power of the remaining two sub-dimensions – teacher observation and feedback, and using data for the purposes of improvement – is likely to be that of self regulation, understood as the ability to ‘...judge performance relative to goals, generate internal feedback about amounts and rates of progress towards goals, and adjust further action based on that feedback’ (Butler & Winnie, 1995, p. 258).

While most research on self regulation has been concerned with student rather than teacher and organisational learning, leaders who understand how to foster self-regulated learning and improvement in students could use that same understanding to foster teacher and organisational learning (Robinson, 2002).

Similar principles explain why routine use of student social and academic data for the purposes of improvement is associated with better student outcomes. Closely analysed evidence about the learning of students allows deliberate adjustments to a classroom teaching programme in order to better meet the needs of students. Research suggests that when teachers use an in-depth analysis of assessment information to assist them to modify their programme, then student achievement is raised (Newmann, King & Rigdon, 1997; Pressley, Allington, Wharton-McDonald, Block & Morrow, 2001).

Just as for goal-setting, the literature on feedback and self-regulation provides a rich resource for understanding the particular qualities which are more or less likely to promote greater student achievement. Not all types of feedback are equally effective for promoting teacher and student learning. For example, learning goals are more effective than performance goals in promoting self-regulated learning (Newman & Schwager, 1995); feedback about learning processes may be more effective than feedback about outcomes (Zimmerman, 2000), and feedback that is linked to a corrective strategy is more helpful than one which is not (Black & William, 1998). Leaders who understand these underlying principles are likely to be able to give feedback and use data in ways that help their teachers learn how to improve valued student outcomes.

In summary, in higher performing schools, leaders work directly with teachers to plan, coordinate and evaluate teachers and teaching. They are more likely than their counterparts in lower performing schools to provide evaluations that teachers describe as useful, and to ensure that student progress is monitored and the results used to improve teaching programs.

Dimension Four: Promoting and Participating in Teacher Learning and Development.

This leadership dimension is described as both promoting and participating in teacher learning and development, because more is involved than just providing opportunities for staff development. The leader participates with his or her staff as the leader, learner or both. The contexts for such learning are both formal (staff meetings and professional development) and informal (discussions about specific teaching problems).

Seventeen effect sizes derived from six studies were calculated for this dimension yielding an average effect size of 0.84. This is a large effect and provides some empirical

support for calls to school leaders to be actively involved with their teachers as the 'leading learners' of their school. In higher achieving and higher gain schools, teachers report their school leaders (usually the principal) to be more active participants in teacher learning and development than in lower achieving or lower gain schools (Andrews & Soder, 1987; Bamburg & Andrews, 1991). Similarly, leaders are more likely to promote and participate in staff discussion of teaching and teaching problems than principals in lower gain/lower achieving schools (Heck et al., 1990; Heck et al., 1991).

The principal is also more likely to be seen by staff as a source of instructional advice, which suggests that they are both more accessible and more knowledgeable about instructional matters than their counterparts in otherwise similar lower achieving schools. In one study which used a social network approach to understanding the source of principal influence, teachers were asked to indicate who they approach for advice about their teaching (Friedkin & Slater, 1994). Principals were significantly more likely to be nominated as sources of advice in higher achieving schools. In contrast, the extent to which teachers identified principals as close personal friends or as participants in discussions was not significantly related to student outcomes. The authors suggest that leaders who are perceived as sources of instructional advice and expertise gain greater respect from their staff and hence have greater influence over how they teach. In addition, the principal's central position in school communication networks means that their advice is more likely to have a coordinating influence across the school (Friedkin & Slater, 1994).

Given the power of this leadership dimension, more research is needed on the reasons why school leaders at both senior and middle management levels choose to participate or not in teacher learning activities. There is some evidence from a longitudinal study of principal leadership of professional development in nine United States elementary schools that principals see their responsibilities in terms of acquiring the resources for the professional development of staff, rather than, in addition, learning with their staff or engaging in their own professional learning programme (Youngs & King, 2002).

What might account for the power of this leadership dimension? The first possibility is that leaders' promotion of and participation in teacher professional learning is an indicator of their focus on the quality of teachers and teaching. Such a focus is likely to have payoff for student outcomes given that teaching quality is the biggest system level influence on student achievement (Mujis & Reynolds, 2001; Nye, Konstantopoulos & Hedges, 2004).

Another possibility is that leaders who participate with teachers learn more about what their staff are up against, and thus provide them with more real support in making the changes required to embed their learning in their daily practice. We know that leadership works indirectly by creating the conditions that enable teachers to be more effective with students (Hallinger & Heck, 1996; 1998). By participating with staff, leaders are likely to have a much more detailed appreciation of the changes in student grouping, timetabling, teaching resources and time allowances that will help staff change their practice. They will also have a much deeper appreciation of the likely stages and duration of the change process.

As for all five dimensions of leadership discussed in this paper, these particular findings need to be connected to relevant empirical and theoretical literature so that both educational leaders and leadership researchers can identify the particular qualities of professional de-

velopment that make a difference for students. A recent synthesis of research on teacher professional learning and development provides good guidance about these qualities (Timperley, Wilson, Barrar, & Fung, 2007; Timperley & Alton-Lee, 2008). The synthesis is based on 97 published studies that evaluated the impact of professional development on the social or academic outcomes of the students of the participating teachers. The authors identify features of the context of professional development, and of its content, constituent activities and learning processes, that indicate the extent to which professional development is likely to improve student outcomes.

With respect to context, the effective opportunities were characterised by seven qualities: providing extended time and using it effectively; engaging external expertise, ensuring teachers were engaged in the learning rather than assuming that success required volunteers, challenging problematic discourses especially around low expectations for students, providing opportunities to participate in a professional community that was focused on the teaching-achievement relationship, ensuring opportunities were aligned with current policy and research, and, finally, involving school leaders who supported the learning by setting and monitoring targets and developing the leadership of others. It should be noted that a few studies provided exceptions to these generalisations and that, as for the five leadership dimensions discussed in this paper, the details and nuances are important for understanding precisely what is involved in effective professional development.

The qualities of the content of professional development that were associated with greater student impact included: the integration of theoretical principles with practical examples, a clear emphasis on how teachers contribute to student learning and well-being, and the use of assessment to enhance teacher self-regulation. While few studies examined the issue of sustainability, it appeared to be dependent, firstly, on whether teachers acquired an in-depth understanding of the underlying theoretical principles so they could use their learning flexibly in their classrooms and secondly, on whether they learned how to inquire accurately into the impact of their teaching on students.

Regarding the activities that were included in the professional development itself, no particular activity (e.g., classroom observations, professional reading, being observed and getting feedback, discussing student work) was required for success. What did seem to be necessary was alignment of purpose and activity, provision of a variety of activities, opportunities for negotiation of the meaning of key concepts and a strong focus on the impact of teaching on the student.

Finally, the synthesis revealed important features of the learning processes involved in more effective professional development. When the new learning challenged teachers' existing understandings, deep rather than superficial engagement with those understandings was needed, so that a co-constructed alternative theory of practice could be developed. This required leaders of the professional development to be highly skilled in their facilitation of teacher learning. When the new learning involved an elaboration of the teacher's current understandings and practices, then such deep engagement was not required.

Dimension Five: Ensuring an Orderly and Supportive Environment.

This dimension involves creating a safe caring and orderly school environment in which staff can teach and students can learn. The dimension was derived from eight studies which

produced 42 indicators for an average effect size of 0.27. The indicators that contributed to this dimension included such things as a focus by leadership on cultural understanding and a respect for difference, leaders' provision of a safe orderly environment with a clear discipline code, and minimal interruptions to teaching time. It also incorporated the protection of faculty from undue pressure from parents and officials, and effectiveness in resolving conflicts.

The findings suggest that the leadership of effective schools is distinguished by its emphasis on and success in establishing a safe and supportive environment through respectful relationships and clear and consistently enforced social expectations and discipline codes (Heck et al., 1991). In one study which surveyed teachers, parents and students (Heck, 2000), there were consistent reports across all three groups of the extent to which they felt safe, comfortable and cared for. The more positive these reactions, the higher the school quality and the higher its achievement levels when student background factors were controlled.

The leadership in higher performing schools is also judged by teachers to be significantly more successful than the leadership of lower performing schools in protecting teachers from undue pressure from education officials and from parents (Heck, 1992; Heck et al., 1991). This finding was particularly strong in high school samples.

An orderly and supportive environment is also one in which staff conflict is quickly and effectively addressed. In one study, principal ability to identify and resolve conflict, rather than allow it to fester, was strongly associated with student achievement in mathematics (Eberts & Stone, 1986).

This leadership dimension provides hints of the types of school climate and relationships that foster student achievement and well-being. It suggests that leadership that is simultaneously caring, courageous and respectful is required. Once again, however, it is necessary to look beyond the multivariate quantitative evidence on leadership to understand the mechanisms that might explain these findings.

There are few studies which empirically examine the links between leaders' relational qualities and students' social and academic outcomes. One exception is the research programme on relational trust conducted in urban Chicago elementary schools (Bryk & Schneider, 2002). These schools were part of a radical reform programme involving decentralisation of school governance, including principal appointment and appraisal, to local school councils comprised of a majority of parent elected members.

The outcomes of the reforms were tracked over a seven-year period in more than 400 Chicago elementary schools, through assessments of students' reading and mathematics. These data bases, supplemented by extensive field work in a selected sample of schools, were used to examine the impact of the quality of 'relational trust' among adults on the extent of school improvement as judged by trends in gains in student achievement. In the context of schooling, relational trust involves a willingness to be vulnerable to another party because one has confidence that he or she will fulfil the obligations and expectations relevant to the shared task of educating children. It is a willingness to be vulnerable under conditions of risk and interdependence, rather than a feeling of warmth or affection (Tschannen-Moran & Hoy, 2000).

Trust is applicable to all the relationships in the school community, including those be-

tween teachers and their principal, teachers and parents, and between teachers themselves. Trust between parents and teachers diminishes when parents perceive that a teacher has treated their child unfairly or when teachers see parents as failing in their obligation to send their children to school. Trust between parents and board members diminishes when the latter are seen as acting in the interest of their own children instead of in the interest of all children in the school. Trust is also relevant to adult-student relationships, but these were not included as part of the Chicago research programme.

The authors tested the proposition that relational trust was a key resource for school improvement by examining the linkages between changes in relational trust and student outcomes. There was a strong statistical link between improvements in relational trust and gains in academic productivity. While improving and non-improving schools started at similar baseline levels of trust, three years later they were very different, with upward trust trends in the improving schools and stable or downwards trends in the non-improving schools. These results were not explained by differences in aspects of school context, student composition or teacher background.

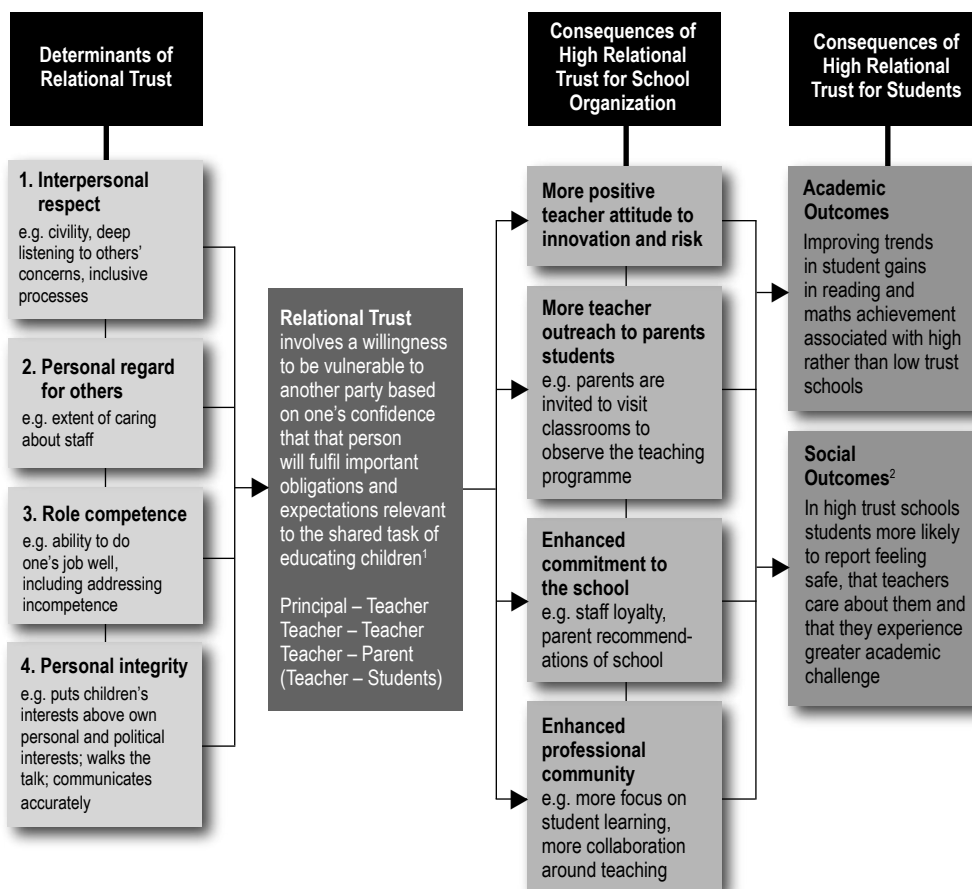
Figure 2 explains the leadership qualities that build relationship trust and shows how increasing levels of trust between the adults change student outcomes via shifts in the school culture and organisation. Judgments about the trustworthiness of others are made on the basis of four interpersonal qualities: respect, competence, personal regard for others and integrity.

The most basic quality is that of social respect – maintaining a modicum of civil regard in ongoing social exchanges is a minimal condition for a functioning school community. ‘Key in this regard is how conversations take place within a school community. A genuine sense of listening to what each person has to say marks the basis for meaningful social interaction’ (Bryk & Schneider, 2002, p. 23). Leaders who take others’ views into account foster the social affiliation and cooperative activity needed to educate children.

Competence is the second criterion on which discernments of trust are based. Allowed to persist, gross incompetence is highly corrosive to trust and undermines collective efforts at school improvement. This may help explain why teachers’ perceptions of their principal’s ability to identify and deal effectively with conflict were strongly related to student achievement (Eberts & Stone, 1986). Leaders who are conflict avoiders or conflict escalators will be unlikely to deal with competence issues in a timely and effective manner. Since school improvement requires sustained collective effort, teachers will become demoralised and reduce their commitment if they judge that their leaders can not deal with those who wittingly or unwittingly undermine their efforts.

The third criterion is that of personal regard. It involves caring about others in both their personal lives and their professional roles. For example, a principal who meets with a teacher for career planning and professional development purposes is likely to build the trust of that staff member. The knowledge that others care reduces one’s sense of vulnerability, increases social affiliation and invites reciprocal regard. Teachers need personal expressions of support as much as anyone else.

The fourth criterion of integrity is based on the perception of consistency between what a leader says and does. While such consistency increases trust, more than consistency is involved, because the values inherent in leaders’ actions are also evaluated. Judgments



1 This definition is based on that of Bryk, A. S., & Schneider, B. L. (2002). *Trust in schools: A core resource for improvement*. New York, NY: Russell Sage Foundation Publications and on that of Tschannen-Moran, M., & Hoy, W. K. (2000). A multidisciplinary analysis of the nature, meaning, and measurement of trust. *Review of Educational Research*, 70(4), 547-593.

2 Social outcomes of improving and non-improving schools are reported in Sebring, P. B., & Bryk, A. S. (2000). School leadership and the bottom line in Chicago. *Phi Delta Kappan*, 81 (6), 440-443.

Figure 2: How Relational Trust Works in Schools

are made about whether moral and ethical principles guide the leader's work and whether those principles are used to adjudicate the many conflicts of interest that arise in schools. Bryk and Schneider (2002, p. 26) write that '...integrity demands resolutions that reaffirm the primary principles of the institution. In the context of schooling when all is said and done actions must be understood as advancing the best interests of children.' Discernments of integrity may also involve judgments about whether leaders keep their word.

Increased trust benefits students through changes in school culture and organisation (Figure 2). In schools where trust levels increased over a three year period, teachers reported a greater willingness to try new things, a greater sense of responsibility for their students, more outreach to parents, and stronger professional community involving more

shared work, more conversations about teaching and learning and a stronger collective focus on student learning. Increased relational trust produced more coordinated, mutually supportive and more effective efforts to engage students in learning. With increased trust comes more and better quality cooperation, more social support and a stronger sense of mutual obligation, binding together the efforts of teachers, principals and parents.

As portrayed in Figure 2 schools with higher and improving levels of trust were those in which there were increasing trends in the yearly gains of students in maths and reading. The relationship between trust and trends in student achievement were apparent even with rigorous control of student and community background variables. A second related study of relational trust found that social outcomes were also more positive in high rather than low trust schools, with students reporting feeling safer, more cared for by their teachers and more academically challenged.

Discussion

This paper began with a call to move beyond investigations of the impact of leadership in general, to more refined analyses of the impact of different types of leadership on a range of valued student outcomes. In this paper, five types or dimensions of leadership were derived from a metaanalysis of 11 studies which measured the relationship between type of leadership and student outcomes. The results showed that the magnitude of impact for the five dimensions ranged from small to large, with the moderate and large impacts associated with more direct leader involvement in the oversight of, and participation in, curriculum planning and coordination and teacher learning and professional development. This suggests that the closer leaders are to the core business of teaching and learning, the more they are likely to make a difference to students.

This metaanalysis was unusual in that the unit of analysis was the effect size associated with each component of the composite leadership variable rather than the effect size for the composite variable itself. Apart from the advantage of a greatly increased number of effect sizes from which to estimate the mean effect for each dimension, this analytic technique enabled a much more precise analysis of the relative impact of various leadership types than is possible if the unit of analysis is each study. In addition, by examining the wording of each survey item and the description of the component constructs, the analysis stayed closer to the actual leadership practices involved in each dimension.

The most obvious limitation of the analysis is the small number of available studies. Despite the thousands of studies of school leadership and the conviction of the public and policy makers that the quality of leadership impacts the quality of student outcomes, there are surprisingly few studies that test the relationship. Part of the problem is the complexity and expense of developing or constructing data bases that link measures of school leadership to measures of student social and academic outcomes that are analysable at the school level, and given recent developments in multi-level modelling, at the level of the individual student as well. Also relevant is the traditional separation of the field of school leadership from teaching and learning (Robinson, 2006).

An additional important limitation of this and similar analyses, is the level of abstraction involved in the dimensions and even in the individual indicators. While the analysis

suggests, for example, that closer involvement of leaders in teacher learning and professional development is associated with stronger student outcomes, it does not indicate the particular qualities of teacher professional development that leaders need to promote. The previous discussion of the research evidence on teacher professional development shows that quite a lot is now known about what these qualities are. The survey items that contributed to this leadership dimension did not discriminate between leaders who were more and less attentive to these qualities. They simply asked about the extent of leaders' promotion of, and participation in, any kind of teacher professional development. If the research focus shifted to leaders' promotion of, and participation in, the kinds of professional development that have a demonstrable impact on students, as well as on the participating teachers, then the impact of this leadership dimension on student outcomes is likely to be even larger than that reported to date.

Considerable emphasis has been put in this paper on explaining the processes through which the identified dimensions might influence student outcomes. The theoretical resources for these explanations were typically drawn, not from the leadership literature, but from relevant research in social psychology, teacher and student learning and organisational and interpersonal change. This literature connects educational leadership to its core business of teaching and learning and these connections need to be substantially strengthened if leadership literature is to deliver more reliable and more useful insights into the particular leadership practices that create the conditions that enable teachers to make a bigger difference to their students.

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The twenty-six studies with evidence about the links between leadership and student outcomes

Note: Only 11 of the 26 studies reported data on dimensions of leadership. These 11, indicated with an asterisk, were included in the metaanalysis of the effects of dimensions of leadership on student outcomes.

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About the Author

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After completing her doctoral study at Harvard University, Viviane Robinson took up a position at The University of Auckland, New Zealand where she is now Professor in the Faculty of Education. She is an organisational psychologist, specialising in school effectiveness and improvement, leadership and the relationship between research and the improvement of practice. She is the author of four books and numerous chapters and journal articles. Her work has been published in such leading international journals as *Educational Researcher*, *Educational Administration Quarterly* and *Review of Educational Research*.

Viviane is also Academic Director of the First-time Principals Programme – New Zealand's national induction programme for school principals. This 18 month programme prepares newly appointed principals through residential courses, on-line learning and individual mentoring.

She is passionate about doing research that makes a difference to practice, and it is this passion that motivates much of her research and writing. She has recently published a best selling book, based on her experience teaching teachers how to do research that is both rigorous and relevant to their job situation (Robinson, V.M.J., & Lai, M.K., 2006, *Practitioner research for educators: A guide to improving classrooms and schools*, Corwin Press).

Most recently, Viviane has been involved as a writer of the Iterative Best Evidence Synthesis on Educational Leadership. This work is part of the New Zealand Ministry of Education's Best Evidence Synthesis programme which is designed to support a more evidence-based policy making process as well as to make relevant research findings accessible to school practitioners (<http://www.minedu.govt.nz/goto/bestevidencesynthesis>). The leadership synthesis analyses national and international evidence on the impact of leadership on a wide range of student outcomes. This Monograph draws upon Viviane's work on this project.

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